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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/997,932 | 11/28/2001 | Thomas E. Broderick | 2060-78 | 5338 |

22442 7590 07/22/2003

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EXAMINER

KUHAR, ANTHONY J

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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1754

DATE MAILED: 07/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/997,932

Applicant(s)

BRODERICK ET AL.

Examiner

Anthony J Kuhar

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 6/27/03 in paper no. 5.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-70 is/are pending in the application.
- 4a) Of the above claim(s) 46-64 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 25-28, 30-45, and 65-67 is/are allowed.
- 6) ☒ Claim(s) 1-5, 7, 11, 12, 15, 16, 18-21, 68 and 69 is/are rejected.
- 7) ☒ Claim(s) 6, 8-10, 13, 14, 17, 22-24, 29 and 70 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2,3. 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Applicant's election of Group I in Paper No. 5 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: 34. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities: On page 9, line 18, "metal reagent 12" should be –metal reagent 20–.

Appropriate correction is required.

Claim Objections

Claims 8 and 29 are objected to because of the following informalities: "Group 8B" does not exist in the periodic table. It appears –Group 4B– was intended. Appropriate correction is required.

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Claim 17 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 17 cannot be dependent on itself.

Claim 70 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 67. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 112

Claim 4 recites the limitation "the soil". There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-3, 7, 15, 16, 18, 19, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE 3814684 A.

In the English language abstract of DE 3814684 A, iron chloride solution as the metal reagent and a sulfide is added to soil contaminated with mercury to stabilize the mercury in the soil.

DE '684 does not teach that oxygen is entrained after the metal reagent and the sulfide is mixed in. However, the English language abstract discloses mechanical stirring, which would entrain oxygen in the soil.

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DE '684 does not teach the pH of the soil before or after addition of the sulfur compound. However, the pH of most soil is inherently between 4 and 8. Although DE '684 does not disclose the pH of the soil increases after the addition of the sulfur compound, it would do so since DE '684 performs the same process.

DE '684 teaches the sulfide is added in the amount of 0.5-1.5 mol sulfide per mol of iron chloride used. Although DE '684 does not specifically disclose the amount of mercury or metals in the soil, the amount of reagent with respect to the soil, or the amount of sulfur compound with respect to mercury content and total metal content in the soil, it would have been obvious to one of ordinary skill in the art at the time the invention was made to determine these parameters, if not already inherently present in DE '684, because it is not inventive to determine the optimum or workable range which only requires routine experimentation, see *In re Boesch*, 205 USPQ 215.

Claims 1, 2, 4, 7, 15, 16, 18-21, 68, and 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vos '093.

Vos '093 teaches in column 1, lines 34-67 treating heavy metal containing waste, such as soil, with a mixture of sulfide, calcium phosphate (a metal reagent), and calcium carbonate. The selection of any order of process steps is prima facie obvious in the absence of new or unexpected results. See *Ex parte Rubin*, 128 USPQ 440 and *In re Burhans*, 154 F.2d 690, 69 USPQ 330. Column 1, line 42 teaches mixing, which would entrain oxygen, and adding water as an agent to assist in mass transfer, which is essentially a dispersant.

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Vos '093 does not teach the pH of the soil before or after addition of the sulfur compound. However, the pH of most soil is inherently between 4 and 8. Although DE '684 does not disclose the pH of the soil increases after the addition of the sulfur compound, it would do so since DE '684 performs the same process. He teaches a soil pH of 8.5 after the entire treatment in column 1, line 61.

Vos '093 teaches adding the metal reagent, calcium phosphate, in the amount of 1-3% by weight of the waste in column 1, line 47. The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness, in re Malagari, 182 USPQ 549.

Vos '093 teaches in column 1, lines 62-65 adding sulfide in the amount of 1-12% by weight depending on the amount of contaminants present. The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to select the portion of the prior art's range which is within the range of applicant's claims because it has been held to be obvious to select a value in a known range by optimization for the best results, see In re Boesch, 205 USPQ 215.

Vos '093 also further teaches that calcium carbonate is added in column 1, line 41, which would impregnate the soil with an oxygen containing compound in addition to the sulfide and calcium phosphate as the metal reagent.

Claims 1, 2, 5, 11, 12, 15, 16, 18, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chowdhury '312.

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Column 5 of Chowdhury '312 teaches adding an oxidation-reduction potential control agent, e.g. a metal reagent, to wastes such as soils containing arsenic. Another agent is added such as ferric sulfate or aluminum sulfate, which is a sulfur containing compound. Then, a pH control agent, which appears to function as an activator, is added. Column 5, line 40 teaches mineral containing acid or ferric sulfate as the pH control agent. Column 5, lines 58-60 teach the oxidation-reduction potential control agent is added first, the adsorption-coprecipitation control agent such as ferric sulfate or aluminum sulfate is added next, and then the pH control agent. Mixing in a pugmill or cement mixer is taught, which would entrain oxygen. Chowdhury '312 teaches the oxidation-reduction potential control agent is added 0.5% by weight in column 6, line 33.

Chowdhury '312 does not teach the pH of the soil before or after addition of the sulfur compound. However, the pH of most soil is inherently between 4 and 8. Although Chowdhury '312 does not disclose the pH of the soil increases after the addition of the sulfur compound, it would do so since Chowdhury '312 performs the same process.

Allowable Subject Matter

Claims 6, 8-10, 13, 14, 17, and 22-24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 25-45 and 65-67 are allowable over the prior art because the prior art does not teach a step of adding an iron compound to react with the sulfides.

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Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony J Kuhar whose telephone number is 703-305-7095. The examiner can normally be reached on 8:45 am - 5:15 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stan Silverman can be reached on 703-308-3837. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

AK

AK
July 21, 2003



**STEVEN BOS
PRIMARY EXAMINER
GROUP 1100**